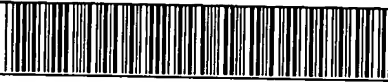


U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

EXAMINER'S CASE ACTION WORKSHEET

Application No.
10/039,219



Legal Instrument Examiner

CHECK TYPE OF ACTION

DATE OF COUNT

| | | |
|---|---|---|
| <input checked="" type="checkbox"/> Non-Final Rejection | <input type="checkbox"/> Restriction/Election Only | <input type="checkbox"/> Final Rejection |
| <input type="checkbox"/> Ex Parte Quayle | <input type="checkbox"/> Allowance | <input type="checkbox"/> Advisory Action |
| <input type="checkbox"/> Examiner's Answer | <input type="checkbox"/> Reply Brief Noted | <input type="checkbox"/> Non-Entry of Reply Brief |
| <input type="checkbox"/> Defective Notice of Appeal | <input type="checkbox"/> Interference Disposal SPE _____ (Approval for Disposal) | <input type="checkbox"/> Suspension (Examiner-Initiated) SPE _____ (initial) |
| <input type="checkbox"/> Defective Appeal Brief | <input type="checkbox"/> SIR Disposal (use only after FAOM) | <input type="checkbox"/> Supplemental Examiner's Amendment |
| <input type="checkbox"/> Miscellaneous Office Letter (With Shortened Statutory Period Set) | <input type="checkbox"/> Notice of Non-Responsive Amendment (With One Month Time Period set) | <input type="checkbox"/> Miscellaneous Office Letter (No Response Period Set) |
| <input type="checkbox"/> Abandonment after BPAI Decision | <input type="checkbox"/> Supplemental Action (excluding Examiner's Answer) | <input type="checkbox"/> Response to Rule 312 Amendment |
| <input type="checkbox"/> Letter Restarting Period for Response (e.g., Missing References) | <input type="checkbox"/> Interview Summary | <input type="checkbox"/> Authorization to Change Previous Office Action SPE: _____ (Initial) |
| <input type="checkbox"/> Abandonment | <input type="checkbox"/> Express Abandonment Date: _____ | <input type="checkbox"/> Other Specify: _____ |

Examiner's Name: DiLinh Nguyen

AU: 2814



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/039,219 | 01/02/2002 | Chun-Chi Ke | 56843 (71987) | 2017 |

7590

02/28/2003

Mr. Peter F. Corless
EDWARDS & ANGELL, LLP
101 Federal Street
Boston, MA 02110

EXAMINER

NGUYEN, DILINH P

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 02/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,219

Applicant(s)

KE ET AL.

Examiner

DiLinh Nguyen

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-4 in Paper No. 5 is acknowledged. The traversal is on the ground(s) that claim 1 is similar to limitations of claim 5 and the examiner has failed to demonstrate that the product as claimed can be made by another and materially different process. This is not found persuasive because:

- I. Claims 1-4, drawn to a semiconductor device, classified in class 257, subclass 678+.
- II. Claims 5-8, drawn to a method for forming a semiconductor device, classified in class 438, subclass 106.

The inventions are distinct, each from the other because:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by different process, it would be possible to form a second tape to the encapsulant prior to the step of adhering to the first side of the lead frame.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

The requirement is still deemed proper and is therefore made FINAL.

Title

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Specification

Claim 1 is objected to because of the following informalities:

In line 11 of claim 1, the phrase: "...a semiconductor chip mounted in the cavity..." should be changed to the semiconductor chip mounted in the cavity.

In line 13, the phrase: "...a plurality of bonding wires..." should be changed to the plurality of bonding wires or bonding wires.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitaoka et al. (U.S. Pat. 5523608) in view of Mizue et al. (U.S. Pat. 6315465).

Kitaoka et al. disclose a semiconductor device (fig. 1, column 3, lines 45 et seq.) comprising:

a lead frame having a first side and a second side, and formed with a die pad 7 and a plurality of leads surrounding the die pad, wherein the leads are each defined into

Art Unit: 2814

an inner lead 3, an outer lead 4 and a middle portion positioned between the inner lead and the outer lead;

an encapsulant 8 for encapsulating the lead frame with the outer leads being exposed, wherein a cavity is formed in the encapsulant for exposing the die pad and the inner leads on the first side of the lead frame, allowing a semiconductor chip 1 and bonding wires 5 to be received in the cavity;

the semiconductor chip 1 mounted in the cavity on the die pad of the first side of the lead frame;

bonding wires 5 formed in the cavity for electrically connecting the semiconductor chip to the inner leads of the lead frame; and

a lid 11 adhered onto the encapsulant for covering an opening of the cavity.

Kitaoka et al. fail to disclose each of the middle portions extends outwardly at sides thereof to form protrusions.

Mizue et al. disclose a semiconductor device (fig. 3) comprising:

a lead frame, wherein the leads are each defined into an inner lead, an outer lead and a middle portion positioned between the inner lead and the outer lead, and each of the middle portions extends outwardly at sides thereof to form protrusions.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Kitaoka et al. to maintain the stability and reliability for the semiconductor device, as shown by Mizue et al.

- Regarding claim 2, it would have been an obvious matter of design choice to form the middle portions of the leads are arranged in a manner that spacing

Art Unit: 2814

between the adjacent middle portions is 0.10 mm, or equal to or smaller than 0.15 mm.

3. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitaoka et al. (U.S. Pat. 5523608) in view of Mizue et al. (U.S. Pat. 6315465) and further in view of Waki et al. (U.S. Pat. 5479051).

Kitaoka et al. and Mizue et al. fail to disclose a first tape adhered to the second side of the lead frame and a second tape adhered to the first side of the lead frame.

Waki et al. disclose a semiconductor device (figs. 3A and 7A) comprising :
a tape 12 adhered to the first side of the lead frame in a manner free of interference with arrangement of the bonding wires (fig. 3A, column 4, lines 14-22) and plurality of tapes 22a and 22b adhered to the second side of the lead frame (fig. 7A).
Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Kitaoka et al. and Mizue et al. to increase the quality and reliability for the lead frame, as shown by Waki et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (703) 305-6983. The examiner can normally be reached on 8:00AM - 6:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

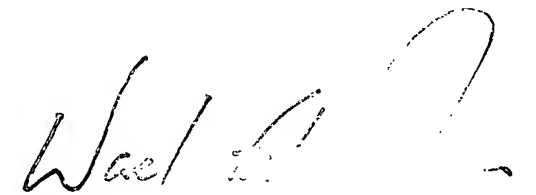
Application/Control Number: 10/039,219

Page 6

Art Unit: 2814

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

DLN
February 19, 2003


SUPERVISOR
TECHNICAL CENTER 2800